CHAPTER 1

COMBAT ENVIRONMENT

Weather, terrain, and the time of day constitute the basic environmental setting for all military operations. These physical conditions affect operations, systems, and personnel and act as constraints on the combat options available to your commander. Part of your job is to alert your commander and the staff of the implications adverse weather may have on both friendly and threat tactics, techniques, and procedures (TTP).

WEATHER AND THE COMMANDER

FM 100-5 states that terrain and weather affect combat more than any other physical factors. Weather not only affects battlefield operations, weapons, and electronics systems but also affects the soldiers that make it all work. Commanders cannot control the weather, but they must be sensitive to the effects inclement weather has on their unit.

In your role as the brigade or battalion staff officer with primary responsibility for weather intelligence and planning, you may not be Patton's chaplain. But you have an even more important task than writing a weather prayer--that of keeping your commander informed of adverse weather problems. And in order to do this, you need to be familiar with weather terminology and the collection, forecasting, and reporting available to your command.

Separate and aviation brigades, armored cavalry regiments (ACRs), special forces groups (SFGs), and divisions and above have a United States Air Force (USAF) staff weather officer (SWO) and weather team (WETM). Their job is to collect, analyze, and advise the senior intelligence officer (SIO) of current and forecasted weather conditions which will affect operations.

At maneuver (and other) brigades and battalions, you have no SWO. It is therefore very important that you familiarize yourself with the observations, forecasts, and other services provided by SWOs and WETMs at higher echelons. You need a general working knowledge of meteorology and an understanding of this manual. The simple WTDAs presented here help you in putting several pieces of the weather puzzle together. They then aid you in translating weather information into a format understandable to your commander and staff.

BATTLEFIELD ENVIRONMENT

Battlefield environmental conditions play a major role in the application of TTP. Some of the environmental factors evaluated in this manual are--

- General weather conditions.
- Terrain effects.
- Battlefield-induced contaminants (BIC).
- Illumination.
- Background signatures.
- Hazardous or severe conditions.

Evaluation of each of these factors is essential during your commander's decision-making process. All must be considered together in your analysis because they all impact each other--and friendly and threat TTP. See Chapter 2 for an explanation of weather factors and their interplay with each other. Chapter 3 helps you translate current weather conditions and future forecasts into valuable intelligence.

WEATHER ELEMENTS AND CRITICAL VALUES

Weather elements, and their associated impacts on battlefield operations, are the primary focus of this manual. Only the more commonly known, observed, or derived weather and environmental elements are discussed. A working knowledge about these elements is essential. Even more important is knowing when, and to what degree, these elements act as constraints on specific systems or operations.

These thresholds (or amounts) are called critical values and listed for each weather or environmental element. They are based on input from battlefield functional area (BFA) proponents, available data from third-party sources, Army field manuals, and the systematic analysis of weather-induced degradation of operations, systems, and personnel.

Weather and environmental data elements, in addition to those discussed here, may impact Army systems and operations. But the capability to collect and process them, or to technically define their impact, is presently limited. We are developing automated initiatives to identify and collect more weather and environmental data. These findings will be incorporated into subsequent iterations.

WEATHER TACTICAL DECISION AIDS

WTDAs provide tailored decision information to the user. They may be a simple two-sided matrix or lookup tables (as used in this manual), or complex software algorithms requiring computer processing. These tables assist you in matching a particular inclement weather condition with its associated impact on the battlefield. This correlating process is helped along by the WTDAs.

Lookup tables show the impact of critical weather and environmental elements on battlefield operations, systems, and personnel. Remember that these examples do not cover every battlefield situation, condition, or system. You may have to add others to cover any unique items in your unit.

If you are tasked to provide information for weather parameters not normally provided by the WETM, first determine what the critical values are for the system or operation. Your S3 should be able to assist you in analyzing the equipment and determining weather effects GO, NO-GO thresholds. Your nearest SWO (probably at division) can provide the additional weather data support.

You need to keep in mind that much computer-driven automation is coming to the battlefield. Some of these initiatives will affect the collection, processing, and dissemination of weather forecasts and weather effects predictions. They include the All-Source Analysis System (ASAS), the Integrated Meteorological System (IMETS), the Digital Topographic Support System (DTSS), and the Army Tactical Command and Control System (ATCCS). These initiatives will result in more precise data being quickly passed to the users so weather considerations will keep pace with the decision-making cycles of commanders.

THE BATTLEFIELD AND THE ENVIRONMENT

FM 100-5 is the umbrella concept for combat operations and the baseline document that describes warfighting doctrine. All other specific mission operations manuals spring from FM 100-5. It describes how the Army fights and wins on the battlefield. It lists three different types of battlefields on which the Army must be prepared to fight: high-intensity conflict (HIC), mid-intensity conflict (MIC), and low-intensity conflict (LIC).

DISPERSED OPERATIONS

FM 100-5 describes these conflicts as being characterized by dispersed operations employing sophisticated, longer range, and more lethal weapons systems. The scope of the battle is dramatically increased because of these

systems and results in improved battlefield surveillance, more effective target acquisition sensors, and flexible communications links.

Command and control (C^2) is critical to success. Interruption of communications with higher headquarters and adjacent units can destroy synchronization and control. The effective control of airspace is a leading factor in the outcome of battles. High consumption of supplies, rapid movement, and long (therefore vulnerable) lines of communication (LOC) will challenge communicators and logisticians.

Overlaid on all of these concerns is the major constraint the environment plays on the battlefield. These are serious environmental constraints which, in turn, influence your commander's ability to apply maximum combat power at the right time and place.

A good example of using inclement weather effects to an advantage was demonstrated by the Soviets during World War II. They used weather to maximize firepower. Whenever heavy precipitation was expected, they moved their artillery to defilade positions close to the front lines.

After the storm, mobility was usually impossible and the Russians delivered rapid and accurate indirect fire on the immobilized Germans.

PROTECTION OF THE FORCE

Protection of the force against adverse effects of weather is paramount to maintaining maximum warfighting capability--and one of your biggest and most important tasks.

Protection of the force and understanding the impact of adverse weather can be quickly illustrated by an incident from the Korean War in early 1951. A battalion-sized relief-in-place was planned for late afternoon. The location was on the top of a 1,500-meter hill. The temperature at the time of the relief was nice and warm and the operation was conducted by troops wearing summer-like clothing. No plans had been made to issue winter clothing that evening because no one took the time to look at the weather forecast.

During the night a cold front forced temperatures below freezing. Cold weather injuries to 75 percent of the personnel made the unit completely ineffective. Intelligent planning, including a weather forecast, could have avoided the injuries and maintained full warfighting capability.

The protection of your force requires that you understand and identify inclement weather impacts on friendly and threat capabilities for the commander. It is your responsibility to inform him, and other staff planners, of current or forecasted weather conditions that endanger unit success. Accurate weather effects information is a major key to successful military operations.